RETAIL TRADE-AREA DELINEATION TECHNIQUES
FOR CENTRAL PLACE CITIES UNDER 20,000 POPULATION

by

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A NON-THESIS REPORT

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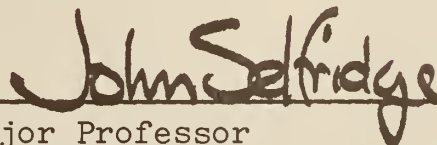
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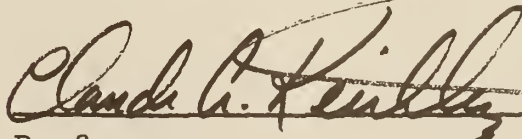MASTER OF REGIONAL AND COMMUNITY PLANNING

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PREFACE

Late in the 1940's, retail trade-area studies were being undertaken quite frequently. Publications on this subject were not difficult to find. Then, with the coming of the post war boom, and continued retail expansion and success of projects, there seemingly was little need for retail trade-area studies. Writings on the subject dwindled as did the performance of retail trade-area studies.

Today, retail trade-area studies are again becoming essential. Rural areas are losing business and population to larger urban centers. Small cities are becoming concerned about this trend but have done little to prevent its taking place. This report has been prepared to meet the needs of operators of small businesses and chamber's of commerce in small cities. The report presents a simplified approach to the study and analysis of retail trading areas. An attempt has been made to produce simplified techniques for the measure-ment and evaluation of trade areas by non-professional market researchers. Therefore, the report can be used as an easy-to-apply manual that provides basic information that can lead to the improvement of retail services and facilities of a partic-ular community.

ACKNOWLEDGEMENTS

CHAPTER I

NATURE AND BACKGROUND OF THE STUDY

The basic underlying material to the body of the report is given in Chapter I. A report must be given a meaning and a purpose for its existence. The reader desires information on how the final product was achieved and which assumptions were made in the achievement of the final product. These necessities will be discussed in the following sections.

Statement of the Problem

Community planning and modern business management require an adequate amount of background information upon which to base the many decisions which are needed for sound community development. Complete and accurate information about the community, and about its actual and potential customers, is vital for local leaders interested in the proper development of their community.

There has been a long-standing need on the part of operators of small businesses and chamber's of commerce in small communities for a simplified and standardized approach to the study and analysis of trade areas. Most of the studies done on this subject are badly outdated and are in need of revision. Therefore, a manual on the application of the various retail trade-area delimitation techniques is needed

for small communities.

It is in the smaller communities of about 20,000 population or less, that are in greatest need for this type of information. Small individual merchants usually do not have the financial resources nor the background training required for making this type of survey. Therefore, it can be made possible for the merchants as a group to sponsor and carry out the study.

Trade-area studies furnish the merchant with information on the buying habits and location of his customers. This provides a sound basis for a more accurate program of advertising and sales promotion. It also assures the merchant against overlooking any of his customers and it indicates new market areas that need additional cultivation.

It is essential for the commercial operators of business to know the relationship between town and country. This is also true for planners. The planner should be aware of the degree of influence his city has over the surrounding region. His policy decisions and recommendations may not only affect the immediate city but also may extend several miles beyond its limits. This point is exemplified by small community downtown renovation. It is important that the planner knows the regional implications of his policy decisions and, in particular, "who and where" these decisions exert influence.

The identification of thresholds for business establishments is essential for fully developing a city's commercial

area. Certain businesses need a minimum amount of consumers to support an establishment. This cannot be easily ascertained unless trade-area analysis is done for the community. Desired new establishments can be encouraged to develop if an adequate market is specifically shown to them.

Therefore, it can been seen that functional linkages to a city's hinterland are of great importance to the vitality of retail trade. Delineation of these linkages as well as having specific data on these linkages can help serve as a tool for community planning and development.

Purpose of the Project

This non-thesis report will contain information to assist any individual merchant or groups of merchants who may be contemplating a retail trade-area survey. It is intended that the report be used as a manual by community leaders to perform trade-area analysis and delineation. The emphasis will be place on delineation techniques most applicable to small communities of generally less that 20,000 population. Obviously, not all of the techniques are exclusively made for small communities and some may be applicable to larger cities.

Throughout the report the dominant theme is that a retail survey is only a means to an end and not an end in itself. The main objective of the study will therefore be to improve retail services and facilities by providing statistically sound data and analysis. The following discussion of

the scope for the project will better point this out.

The Scope of the Study

This study will contain the full process on how to undertake and complete a trade-area survey. The survey methods used in the step-by-step process will be detailed and simplified for easy application. Efficiency and low cost are emphasized in the procedure.

The study will first begin with the nature and background of the study. This chapter assists the reader in analyzing the basic underlying reasons why and how the study took place.

The basic material needed for a better understanding of the trade area will be presented in Chapter II. A brief examination of a trade-area definition and the reasons for undertaking such a study will be given in this chapter. Next, the available sources of data needed to start a trade-area study will be discussed. General trade-area associations and determinants which help shape the trade area will also be given attention. Then the trade-area structure in terms of the primary, the secondary and the tertiary markets will be briefly examined in light of where boundary lines should be drawn conceptually and physically.

The third chapter of the paper will discuss each technique for delineation of trade areas. Each technique shall be examined with regard to its advantages and disadvantages.

Data sources available and basic procedure for carrying out each type of survey will also be given. The eight techniques given here are: (1) Analysis of Credit Records; (2) Analysis of Bank Check Data; (3) Newspaper Circulation; (4) License-Plate Analysis; (5) Law of Retail Gravitation; (6) Determination by Retailers; (7) Traffic Surveys; and (8) Questionnaire Surveys.

From the analysis of literature completed in research, the questionnaire survey was chosen as the method of delineation for small communities. This type of survey provides not only a reasonable demarcation of the retail trade area but also useable data for analyzing consumer buying habits and motivations. This data is extremely valuable in helping discover what items are being lost to other markets and why they are being lost. A simple step-by-step procedure will be provided to the user for carrying out the survey. A basic questionnaire form has also been constructed for general usage in the survey. The final part in this chapter will include a follow-up program for community development. The survey will be useless unless the data obtained can be applied to improve the vitality of the commercial district. Examples of how the data should be analyzed and applied will be provided in this same chapter.

The final chapter of the report will draw some general conclusions. Topics for further research, final remarks on the survey's value and relationships with other studies will

end the report.

Methodology Used in the Investigation

The basic approach used in the formulation of the study
was to analyze the techniques of retail trade-area delineation
and then chose the best method to serve small communities.
A literature search was made of all the available up-to-date
techniques. The best method, the questionnaire survey, was
chosen on the basis of past performances of use in practice.

Applicability and Assumptions

This report is not to be universally applied throughout
the country. For example, the retail trade-area technique
does not yield good results in suburban areas surrounding a
larger dominant center. The researcher will become purplexed
at the complications that arise if the study is done in a
highly clustered urbanized area. The trade area of the domi-
nant center may actually supercede the trade area of the
suburban center. Therefore, delineation of a suburban trade
area is, for practical purposes, impossible.

The technique described in the report will work best for
central place areas which are basically service oriented
toward their hinterland. Retail trade-area studies of rural
areas in the midwest have produced the best results.[1,2]
Uniform distribution of cities most frequently occurs in
rural areas.

Alterations in the questionnaire may have to be made if

the researcher wants to compare different sized cities. All
cities to be studied must contain the same services listed
on the questionnaire if a _direct_ comparison is to be made.
The researcher may not wish to ask questions on lower order
services as groceries or hardware. Once the researcher begins
to ask questions on women's clothes and shoes, he must realize
that the trade area will overlap several cities since very
small cities do not carry these types of stores. Therefore,
no direct comparison can be made but the researcher can still
obtain the trade area for that function.

Finally, the procedure described herein works most
effectively for cities generally under 20,000 population.
This is the size of cities for which the study was designed.
The technique can also be applied to larger cities but other
methods of analysis may be preferable as the size of the city
increases. Further remarks on applicability and assumptions
will be made as appropriate within the text.

CHAPTER II

AN INTRODUCTION TO TRADE-AREA STUDIES

Before the survey techniques are explained in detail,
it would be desirable to examine the foundations upon which
retail trade-area studies are based. The definition of a
trade area, the reasons for undertaking a trade-area study
and the available sources of data for the study should encour-
age the reader to partake in such a study. The remaining
sections will deal with the factors that shape and form the
retail trade area.

Definition of a Trade Area

What exactly are we talking about when we use the term
"retail trade area"? In a general sense the term refers to
the geographical area from which retail patronage is received.
This definition is not sufficient since it does not provide an
answer to the question of how much patronage is derived from
the city's hinterland. "It is suggested that for most
practical purposes a definition of a retail trading area
should be that area from which the community receives approx-
imately 90 percent of its total retail patronage."[3]

Unfortunately, the above definition does not take into
account different classes of goods. People are willing to
travel further for certain types of consumer goods than

others. Therefore, we have different delineations for different goods and services. A whole host of other factors and determinants of trade areas also enter into the picture such as time, costs, linkages, and merchant personality. Thus, the definition again must be revised further.

The final definition which is most appropriate for the report's purposes gives due regard to the above discussion. Consequently, the definition for a retail trading area to be used in the report is "the area surrounding the community from which it secures approximately 90 percent of its sales of a representative group of commodities."[4]

Reasons for Undertaking a Study

The potential researchers of a retail trade-area study must be convinced that their efforts will not be in vain. Retail trade-area studies are relatively easy to apply and have proven to be quite fruitful when used properly.[5,6] The following sections will discuss several of the reasons why a community should undertake such a study.

Information for Merchants on Customer Location

A retail trade-area study furnishes the merchant and community with detailed information on the location of their customers. This knowledge can provide the basis for a more accurate program of advertising and sales promotion. The merchant will be insured against overlooking any of his customers. He will have a much better idea of where to orient his promotional strategy.

The information gained through the study will also indicate market areas that need additional cultivation. The community may not have been cognizant of the fact that it was receiving so little business from areas so near itself. If such were the case, it may indicate that concrete steps should be taken to improve the city's trade positon in the market area.

Information for Merchants on Actual and Potential Customers

A retail trade-area study provides a wealth of information on potential and actual retail trade areas. If potential and actual retail trade areas differ to a great extent, it will be necessary to investigate the reasons for these discrepancies. A retail survey will demonstrate why these discrepancies take place in the area.

The community's actual trade area can be made to exceed its potential trade area if a progressive community development program is followed based on the study. This means more money for the merchants and more dollars for the community.

Reveals Market Thresholds

When the study has been completed, the community will have a good idea of where its retail market area lies. Furthermore, the researchers can then calculate the size of population within the delineated market area. The size of population can give vital clues as to whether the community can support additional retail establishments. Most

establishments have a definite threshold of population necessary to support it. If, for instance, the study reveals that the community has an adequate market for a new shoe store and a clothing store and such are provided, the community will then be assured that they are providing the fullest amount of services possible.

Analysis of Business Trends

If trade area studies are faithfully done every five years, they can provide a wealth of information on business trends within the area. The study can also aid in revealing the factors affecting such trends. Once they are analyzed, the community can move more intelligently toward solving its problems.

Furthermore, an analysis of population decline or growth within the delineated area can be correlated with other studies on changes in buying power of consumers over the same period of time. This will assist merchants in making decisions such as on whether or not to expand their firms.

Indicates Needed Facility Improvements

The questionnaire survey can help determine if the community will need to improve its business facilities. Consumers may be turned away because of unattractive or crowded surroundings. Poor road access, dangerous railroad crossings, and narrow bridges may be discovered as barriers to the community. These kinds of factors may actually deter

customers from shopping in a community.

Planning Impacts

Cities exert an intensive influence over the area
surrounding them, thus forming linked functional hinterlands.
City policies and programs also exert forces on the surround-
ing area. Knowledge of the market area helps the city
officials make decisions on such topics as downtown renewal,
storefront renovations, historical preservation and public
facility improvements such as parks, playgrounds, roads, and
crossings. The survey of consumers will indicate whether
sales actually are detrimentally affected by any of these
factors.

Delineating Functional Areas

Retail trade-area studies demonstrate where most business,
cultural and social interactions occur within a region. By
delineating trade areas for communities, the regional planner
may be able to deduce what area is most appropriate for re-
gional and economic planning. The regional agency can then
aid the planning region in eliminating wasteful duplication
of services and help increase economies of scale to the
benefit of all within the region. Programs can also be more
effectively administered when they operate within cohesive
regional areas.

Available Sources of Data

Several reports and publications are available to aid
the researcher in carrying out a retail trade-area survey.

If the researcher examines several of the sources discussed in the following sections, he will have a good working knowledge of the community. He will also have been more efficient since much information has already been collected by others.

Government Data

The federal government publishes several excellent sources of data. The U.S. Census of Population contains population of cities, townships and counties. The U.S. Census Social and Economic Characteristics contains income levels, sex ratios, age distributions and the like. This data forms a rough measure of the willingness of consumers to buy and the ability to buy.

State departments of commerce will usually have information on total income paid to individuals and furnishes information on the buying power of the area. State departments of employment security will commonly have data on employment by city and region.

Finally, the U.S. Census of Business contains information on retail sales for past years. This census is taken every five years. It may be able to give the researcher some idea of the trends in retail business.

Local sources of data should also be checked to see if they are of any value to the study.

Audit Bureau of Circulation Reports

The Audit Bureau of Circulation (A.B.C.) is an organization which audits reports of circulation by publishers of

newspapers and magazines. The A.B.C. keeps a complete list of purchasers of a newspaper within the region of a community. This type of information provides the researcher with a zone in which retail trade undoubtedly occurs. This zone aids in establishing a study area for the questionnaire survey. The information published by the A.B.C. does not provide information on the buying habits and motivations of consumers within the area.

The researcher should be cognizant of the fact that not all local newspapers are members of the A.B.C. Therefore, since this survey will not be available to all cities, the local newspaper should simply be asked if they are a member of the A.B.C.

Survey of Buying Power

The trade journal, Sales Management, annually publishes a survey of buying power for communities, counties and states. The publication contains information on current population estimates, per capita incomes, an index of effective buying power and retail sales by types of stores. The information is oriented toward larger cities and only provides an overview for smaller ones. By itself it will not help delineate the retail trade area. It should merely be checked for possible data on the particular community being studied.

Traffic Surveys

The state department of highways or transportation maintains traffic counts or traffic estimates on the state

highway system. They sometimes conduct traffic studies for particular cities. An urban traffic survey will contain data on volume of traffic, origin and destination of travelers, and trip purpose. The information, if available, will provide the radius from which the community is drawing trade. It also will show the direction to which it is losing trade. The traffic survey will not likely give the researcher information on buyer motivations and buying habits.

Community Records

The community may collect records which can be helpful to the researcher. Credit records of a local credit bureau may be used to establish the outermost limits of the area from which the community draws sales. Data on local bank service areas, postal routes, school routes and radio range will help determine the field of interaction between the community and its surrounding area. This data can be used in connection with the detailed questionnaires and interviews designed to formulate consumer habits.

Consumer Surveys

The primary source of data in a retail trade-area study is the consumer. Some counties such as Bucks County, Pennsylvania, conduct a local census in each municipality every three years. The primary purpose of the survey is to collect data on tax assessments and school enrollment but the questionnaire also contains consumer related questions. One of the several questions asked is, "Where do you go for

weekly food shopping?" The answers specify the store name
and location. The household data is then transferred on a
cadastral map and thus converted to cartographic form.
Responses are in excess of 90 percent of the households.
Consequently, it provides an excellent representation of the
trade areas within the county.[7]

If this type of data is not available to the researcher,
he must then conduct his own questionnaire survey. The data
collected from direct consumer responses is by far the most
accurate and reliable.

General Trade-Area Associations

A community has three different categories of interaction
and association with its hinterland. It is essential that
the categories be distinguished from one another since
retail trade-area studies are only concerned with one type.

Trade-Area Relationships

The community interacts with its hinterland by providing
it with goods and services. Items such as groceries, cloth-
ing, appliances, cars, farm equipment, and health care are
frequently acquired in one particular community. The hinter-
land also supplys the community with a labor force, with
marketing materials such as produce and crops, and with
consumers of goods and services. These relationships are
the primary concern of the retail trade-area study. The degree
of interrelationship can only be determined through a trade-
area study.

The retail business community and the industrial district also buy and sell wholesale goods. Since these goods are variable and do not reflect business interaction with the primary consumer, they are usually not considered for study in smaller communities.

Social Relations

The community provides cultural and educational associations for its hinterland. Theatres, concerts, fairs, schools and displays all attract people to the city. Churches provide a strong interaction force for people within the social sphere of a city. The city is usually the focal point for these interactions.

Although these relationships are important for the city, they do not aid in measuring the retail trade area. If the researcher used one of these activities as a population base, his sample would undoubtedly be biased and meaningless.

The Catchment Area

The catchment area reflects the movement of the population to and from the central city. It is a general term used to designate traffic or pedestrian movements for purposes of work, shopping, recreation, entertainment, and/or services. Thus, the term is all encompassing and does not necessarily or directly identify the community's retail trade area.

Trade-Area Determinants

A retail trade-area study examines only the business

interactions of a community. The researcher will need further
information than available in the preceding data sources on
the forces that shape and determine the amount and type of
business interaction. The following sections will examine
this point in detail. It should be noted that none of the
following sections are mutually exclusive and all of the de-
terminants are linked together.

Central Place Factors

A city can generally be though of as a service center
for the hinterland around it. The city supplies the hinter-
land with goods and services. These services can be ranked
into higher and lower orders of functions, thus obtaining
centers graded according to the order of services they supply
to the surrounding area. J. D. Carroll, Jr. in his article,
"Defining Urban Trade Areas" states that:

> "A city can be visualized as performing
> a pyramid of functions. The number and variety
> of functions will be proportioned to the popu-
> lation size of the city. In all cities some
> functions are performed for export or for a
> hinterland population as well as for the city
> residents."[8]

Brian Berry and William L. Garrison substantiate this fact
in their article, "The Functional Bases of the Central Place
Hierarchy" by stating that:

> "Previous empirical studies indicate that
> relationships exist between the population of
> a central place and the number of units of any
> function which that place possesses and this
> is, of course, clear from common knowledge."[9]

Therefore, small cities perform a small number of ubiquitous

services such as groceries, hardware, gasoline and drug
stores. As the size of the city increases, the base of
functions increase to meet specialized demands. The greater
the variety and number of functions a city performs, the
greater the likelihodd that these functions will not be
duplicated in the adjacent market areas. Consequently, low
order, ubiquitous functions such as groceries will be per-
formed by all cities and thus will cause an overlapping of
retail market areas between cities. High order functions such
as stylish women's and men's clothes will not have a great
amount of overlap with other competing higher order functions.

The interdependent spatial patterns of cities of
different central place orders, and interlocking market
areas among goods and services, create a hierarchy of central
place market areas. The larger cities containing a great
number of business firms will obtain a larger market area
than a smaller city with fewer firms. The position of a
smaller city, though, is not fixed within the "real world"
market system. It may gain greater profits and expand its
business by considering the above discussion and some of the
additional determinants.

Range and Threshold of a Good

The range and threshold of a good are closely linked to
the central place theory. A range of a good can be defined
as the distance over which a good is supplied to the
consumer. The threshold of a good is the minimum level of

population and income necessary to support the selling of the good. The threshold should be discussed first since the threshold will determine if an activity can take place in the community.

Every firm needs enough consumers (sales volume) from its trade area to survive in a competing market. Lower order functions usually will have a lower threshold than higher order goods. A small city of less than 3,000 can not expect to obtain a large department store chain for their community. The community should strive to contain all the business firms its market area can financially support. For example, the community may be able to support a shoe store. The only way this can be revealed is through undertaking a retail market-area survey.

The range of a good is the maximum distance to which a consumer will travel to purchase a good. The range varies significantly for different orders of goods. In a household survey of consumers it was found that, "...there is a greater willingness to travel an excess distance when purchasing personal goods such as clothes than when purchasing food."[10] Other such studies showed that, "...style and fashion goods supported significantly greater amounts of consumer travel than did low value, bulky items such as lumber or convenience goods such as food."[11] Therefore, we can expect that different order goods will produce different market areas for each good. No two different product market areas will be

exactly alike.

Variety of Goods and Services

As mentioned previously, city size will determine, for the most part, the type of services available in the city. The individual store manager will determine the variety of goods and services contained within the store. It has been shown that consumers, "...are willing to incur some personal economic cost in money and time to achieve an acceptable level of choice."[12] Therefore, all other things being equal, the city which is perceived to have the greatest amount of variety will be the city chosen for shopping.

Consumers usually shop for more than one good at a time. This is especially true for farm shoppers. When farmers and their wives come into town, their trip is multi-purpose. While the farmer is looking at farm equipment or selling produce, the wife is shopping for clothes and groceries. The children are searching for toys and candy. Thus, the shopping trip can be a linked activity for several people. The city which can provide these linked activities and is the most convenient for them will be the city where they shop. This concept is extremely important to remember when undertaking a retail trade-area study for a particular community.

Accessibility

Good accessibility is a primary determinant for retail merchants. Merchants desire to have a location that is free from barriers and is easy to reach for consumers. Accessibility is measured not only in distance but also in time.

"Clearly, a consumer's travel behavior is influenced by the expense, in time and effort as well as actual monetary units, that he perceives to be involved in selecting among various service centers offering the goods and services desired."[13] Therefore, all other things being equal, a consumer will select the city which is most satisfying in terms of accessibility.

The town merchants should be aware of the fact that a poor road and highway system in and around the city will be a detrimental influence to consumer behavior. Winding roads, narrow bridges and roads, dangerous crossings, potholed and poorly surfaced roads, poor circulation patterns, and poorly designed on and off street parking areas will ultimately lower accessibility for merchants and customers. Consumers will then go to other cities where getting to and from the shopping area is not such a trying experience.

Downtown Environment

The general downtown environment in which consumers shop may have a strong influence on the choice of retail shopping areas. One author has gone as far as to state that, "...the fundamental factor affecting the geographic distribution of retail trade is the manner in which consumers organize their perceptions of the external environment with which they are faced."[14] The focus should be on the subjective behavior of human beings instead of the objective rational being. Retail trade-area studies must attempt to measure this subjective

behavior by designing appropriate attitudinal questionnaires.

The first major factor influencing downtown environment is safety. Consumers must feel at ease and secure. Such things as poor lighting, unobservable spaces, and a preponderance of derelics in the downtown area can only lead to reduced sales volume.

A second factor is the appearance of the downtown area. Consumers desire to shop in well-organized, clean and pleasant surroundings. Why should they wish for anything less? The mall concept and various small city downtown renewal projects bear this fact out.

A third factor is the prestige and style of the shopping area. The consumer must build a strong identity to the shopping area. The merchants must demonstrate that they care about the consumer's tastes and desires. They should not try to display that they are depreciating their property like a slum landlord. Consumers do identify with a community and the better the environment, the better the sales will be for the merchants.

Communications

A merchant who does not advertise in one form or another becomes isolated by neglect. Consumers must be convinced that a particular community is the best community in which to shop. Several promotional methods can be employed by downtown merchants.

First, radio and television advertisement have proven to

be an effective means of promoting sales. Second, merchants can organize and coordinate sales promotion days to cut advertising costs and to enhance consumer circulation. Third, newspapers and mailings can be used to gain consumer awareness of any changes to be proposed for the downtown areas. Fourth, billboards have been constructed on roadsides to identify merchants. Billboards sometimes are built in poor taste and do not accomplish the purpose for which they were intended.

Income

Income levels of the retail trade-area residents will exert a strong influence on shopping behavior. It appears from empirical studies on income that higher income consumers are willing to travel longer distances for higher-class goods.[15] The merchants must decide whether they desire to retain this trade or to focus on lower priced goods for the more average consumer found in the merchant's trade area. As stated in a previous section, the threshold and range of a product should be examined in detail.

Income also influences the buying power of the community's residents. By gaining a sound knowledge of the retail trade-area's buying power, the merchants can better select the variety and price range of the goods and services. A retail trade-area study will aid in accomplishing this objective.

Physical Barriers

Natural and man-made barriers within and surrounding a

community will influence the retail trade area. Natural
barriers such as lakes, rivers, ravines and mountains pose
an accessibility problem to the downtown area. The man-made
facilities to accommodate these barriers will determine the
degree of hindrance to consumer sales. Hopefully, these
natural physical features instead of being regarded as a
hindrance will be used to enhance the community's market
position.

CHAPTER III

TECHNIQUES FOR DELINEATION OF TRADE AREAS

Several techniques are available to the researcher for retail trade-area analysis. These techniques will be discussed with regard to procedures, assumptions, advantages and drawbacks. From the eight techniques included herein, the mailed questionnaire survey has been chosen for application in small cities. The remaining techniques will be examined in light of this fact.

Credit Record Analysis

In small cities, individual merchants will usually keep credit records of all of their customers. If a city is fairly large, it may contain a central credit bureau which will maintain records for all business customers. Because of the large amount of records kept on file, it will be necessary to take a cross-section sample of the population. A 10 percent sample is generally used as the sample size, although this should be increased up to 30 percent in smaller cities.

Each credit record address can be tabulated on a work sheet. The data on the work sheet can then be transferred to a cadastral map which has the name of the owner or residences already on it. A delineation of the retail trade area can be made on the base map. Credit record analysis can also provide

an address list for the mailed questionnaire survey.

This technique's main advantage is that the data is easily accessible to the researcher if the credit bureau or the merchants provide the information.

The credit record analysis technique has several major drawbacks. First, credit records in smaller cities may be out-of-date or poorly kept. Second, not all customers have charge accounts. Consequently, any sample taken is, in a sense, biased. Third, some merchants purposely restrict their radius of credit accounts because of bill collection problems. Fourth, in small cities without credit bureaus, several different types of stores would have to be sampled. This obviously would be extremely tedious and time consuming. Therefore, it is recommended that this technique only be used as a secondary source of information. The limitations are too significant for the technique's general use.

Bank Check Data Analysis

"In communities where charge accounts are common and where payment is made by check on a local bank, trade areas can be defined by plotting the addresses of the makers of checks given to retail stores and cleared through the local banks."[16] Since checks are used commonly by all income levels of people, the data should provide a good picture of the trade area. The researcher should be cautious of making this assumption for his particular region though (i.e. cultural or race differences).

The procedure used is as follows. First, the researcher must obtain permission from the local banker to use the checks received from local merchants. Second, most banks separate checks by own accounts, other local banks, and out-of-town checks. The researcher must sample from each of these sources unless he has access to the other bank's records as well. Third, the researcher should write down the addresses of the checks being brought into the bank daily by retail establishments. The researcher then merely tallies the addresses on a work sheet. Fourth, the researcher should sample each bank at least during three different days of the week and two different months of the year so that the sample will insure an unbiased reflection of the trade area. Fifth, the addresses are then transferred to a cadastral map for delineation purposes.

The bank check technique has several advantages. First, the method is easy to apply. Second, a fairly accurate representation of the trade area can be made by the researcher. Third, the method is relatively cheap.

The bank check technique also has several disadvantages. First, if local bankers do not cooperate with the survey, the researcher must sample the checks received by each individual merchant. The merchant also may refuse to cooperate if his bank does not cooperate. Second, the technique does not take into account purchases made by cash transactions. Third, the data becomes voluminous and the manipulation tedious if a

large representative sample is taken by the researcher.
Therefore, the bank check data analysis technique should
only be used as a general check for the mailed questionnaire
survey delineation.

Newspaper Circulation Areas

Local newspapers express relationships between the
retail merchants and the immediate hinterland. Retail
merchant advertising accounts up to 75 percent of the
newspaper's budget. Consumers, on the other hand, read the
local newspaper to receive information on sales and prices
of goods, and to keep abreast of local happenings. Local
newspapers usually are published once or twice a week and
have a high subscription rate within a small range.

When making a trade-area survey with newspapers, the
researcher must be careful in comparing daily newspapers with
daily newspapers and local newspapers with local newspapers if
publishing frequencies are different. Local newspapers can
be compared with daily newspapers but a large amount of
overlap is bound to occur and the maps drawn may be meaning-
less. Daily papers often provide national and world news and
thus are not restricted to local areas.

The procedure for undertaking a newspaper circulation
survey is as follows. First, the researcher must secure
permission from the publisher to examine the subscription
data. If the publisher belongs to the Audit Bureau of
Circulation, this work will already have been done. Second,

the researcher must transfer each address of the subscribers onto a work sheet. Third, the data on the work sheet can then be plotted on a cadastral map. Fourth, the map is then delineated by percentages of sales. For example, the primary area could contain 50 percent of the sales, the secondary area could contain 75 percent of the sales and the tertiary area could contain 90 percent of the sales made in the city.

The newspaper circulation method has several important advantages toward use in retail trade-area surveys. First, it appears from studies done by Robert Park that, "...there is a gradient character to newspaper circulation and to traffic and trade as well and that the extent of the areas of dominance are very nearly coterminous."[17] Edward Duddy and David Revzan state that P. D. Converse "...found a correlation of .76 between newspaper circulation and trade movement in nine ... towns."[18] in east-central Illinois. Second, the method is simple to apply if data is available. Third, it is relatively cheap to undertake.

The newspaper circulation technique poses several drawbacks to the researcher. First, circulation may be made by both direct sale and by subscription. If direct sales account for a high percentage of total sales, the location of the newspaper purchaser will be almost impossible to find. Second, if the local newspaper is located in the county seat, the circulation pattern may be overestimated. This is due to the fact that the local newspaper has a partial monopoly

on coverage of political news for the county. Third, if the studied city is the only sizeable city within quite some distance (central place hierarchy) with a newspaper, the city's newspaper may overlap several smaller cities. The smaller cities in reality will also have a trade area which will not be distinguishable from the newspaper circulation area. Fourth, if the city does not have a local newspaper or the subscription data will not be released by the publisher, the method cannot be used by the researcher.

License-Plate Surveys

A retail trade area can be delineated by making a license-plate survey in the commercial area of the city. The general assumption is that people parked on the non-residential streets are within the city for business trade purposes and consequently, are linked to the city in some respect. This assumption is valid in a majority of the cases. The technique can produce an unbiased sample by applying a proper survey procedure.

The following steps are necessary to undertake a proper license-plate survey. First, the researcher must go to the retail trade center of the city. Since we are dealing with small cities, there is usually only one major shopping district. Second, the researcher must collect a list of auto license numbers from the cars parked in the shopping district. This second step should be conducted on different days of the week and at different periods in time so that a representative

sample will be taken of the area. Third, the addresses of the car owners are then obtained from the state motor-vehicle license records. Fourth, the addresses are then plotted on a cadastral map to show the origins of the shoppers. The list of car owners' addresses also serves a dual purpose in that it provides a good mailing list for the questionnaire survey.

The license-plate survey has only one main drawback. The sample could have been taken on an abnormal day. The sample then would not be a representative sample. This drawback can be corrected if several different samples are taken during different periods of time.

The technique's main advantage is that it provides a reasonably accurate approximation of the actual retail trade area. This method is commonly recommended when an exact outline of the trade area is necessary, but the sponsors do not have much time or money to incur on a complete field survey. Therefore, the license-plate survey is recommended for providing the address list for the mailed questionnaire survey.

Law of Retail Gravitation

No other method of retail trade-area delimitation has been as widely applied as the law of retail gravitation. The law was originally conceived by W. J. Reilley in Texas. Reilley merely applied the physics law of attraction to the social phenomenon of trading. The law of retail gravitation states that two cities compete for retail trade in direct proportion to the product of the population and in inverse

proportion to the square of the distances between the two

cities. Stated mathematically $\dfrac{P_1 \cdot P_2}{D_{12}^2} = R.G.$ where

P_1 = population of city one

P_2 = population of city two

D_{12}^2 = the distance between cities one and two squared

R.G.= Retail Gravitation factor

"After an analysis of 255 cases of linking cities and towns

of various sizes in Texas, Reilley concluded that the

exponent of population was the first power and the exponent

of inverse distance is nearer the second power than to any

other power."[19]

P. D. Converse further refined the theory of retail

gravitation. By using more mathematically refined equations,

the researcher can obtain more reliable results. The Converse

procedure is as follows. First, the investigator should apply

the formula which will give a particular city's trade-area

boundaries. The formula is $X = \dfrac{\text{Miles between A and B}}{1 + \sqrt{\dfrac{\text{Population of A}}{\text{Population of B}}}}$

where   A = the competing city

B = the city being studied

X = the distance from B to the trade area breaking
point between the two cities

The formula is applied to each and every city competing

directly with the city to be studied (see Appendix B).

Second, another formula can be applied to find how the trade
should be divided near the border areas for smaller towns.
The formula is $\frac{Ba}{Bb} = \left(\frac{Pa}{Pb}\right)\left(\frac{Db}{Da}\right)^2$ where

    Ba = the proportion of trade gained from the
            intermediate city which is attracted to A

    Bb = the proportion of trade gained from the
            intermediate city which is attracted to B

The formula only gives the trade share that should potentially
take place and not what actually does take place.[20]

Reilley's Law has four underlying assumptions. First,
the larger the city is in terms of population, the more trade
it will draw from the outside. Second, the breaking point
between two cities is where the business volume is shared
equally between the two competing cities. Third, the further
a city is away from a settlement, the less business it will
draw from it. Fourth, and probably most important, the law
of gravitation from physics has a direct relationship to the
law of retail gravitation. These assumptions have led to
several drawbacks in the use of the method.

The law of retail gravitation has several disadvantages
stemming from its underlying assumptions. First, the formula
"...is incapable of providing graduated estimates above or
below the break-even position between two competing centers."[21]
Only trade shares of intermediate towns can be gained by use
of a refined trade formula. This formula, as stated previously,
yields only crude potential estimates of trade shares.
Second, the formula, if applied on a regional basis, may

leave uncovered areas or overlapping trade areas which are
inconsistent with the intentions of the method. Third, the
trade area derived from the method is a composite map of all
types of shopping trips. It should not be construed as a
constant for all types of shopping trips. Fourth, there is
no theoretical content to the law. The law does not take all
the theoretical variables of trading behavior into account.
"...Even Reilley himself admits that his model's specifica-
tions fall far short of including other variables which might
be of critical importance in any given situation."[22] The
relationship of the law with reality could be spurious.
Fifth, no complete agreement has been reached on the value
of the exponents in the formula. The exponents seem to vary
from case to case. Sixth, in order for Reilley's law to even
be partially effective, the city must be a central place.
The city must not be located near a large aggregate of cities
such as in a metropolitan area. The city must have a definite
functional service role.

    Beyond the host of disadvantages mentioned above, the
law of retail gravitation does have some advantages. First,
the method is extremely easy to apply. The complete method
can be finished in a matter of hours. Second, the method is
inexpensive to apply. Its cost is merely a few hours of the
researcher's time. Third, in general, the method gives a
crude approximation of the total trade area. The greater the
population, the greater the number of retail activities that

will be located in a particular city. Therefore, a relation-
ship exists between population, distance, and the market
area. The relationship is not a clear one though.

Based on the above discussion, the law of retail gravi-
tation should not be used as the major source of retail trade-
area delineation. The method does not provide information on
consumer buying habits or motivation. The law of retail
gravitation also does not give the researcher a list of
addresses from which to mail questionnaires.

Determination by Retailers

Retailers usually have a rough idea of where their
customers come from. Store merchants in smaller cities can
get well acquainted with regular customers since the total
volume and range of customers is somewhat less than in a
larger city. The knowledge that retailers have of their
trading area can be valuable to a retail trade-area researcher.

The researcher can use the following procedure to gain
the necessary results. First, the individual retailer is
surveyed to determine the extent of his particular market
area. If the city only has a few stores, a complete sample
can be taken, but if the city has several stores, a stratified
random sample should be taken by category of function. The
retailer should be provided with a complete geographical area
map with roads and other significant landmarks on it. The
retailer is then asked to draw his own impressions on where
his market area lies. Second, the individual maps are then

compiled together into a composite map by taking the average of all the lines drawn around the community being studied. This composite map represents the general retail trade area for the community.

From studies completed by using this method, there seems to be a high level of agreement among retailers as to their breaking points.[23] The technique gives reasonably accurate results since an average of many possibilities has been established.

The determination by retailers technique has several advantages. First, the technique is relatively easy to apply. Compilation of the map data can be done in a matter of hours. The entire survey itself can be done easily within a week for even larger cities. Second, the technique is inexpensive. The man hours necessary to complete the survey should generally be less than 100. Third, the technique provides a good approximation of the retail trade area.

Several limitations also exist with the retailer determined technique. First, the technique will yield arbitrary results where the sample taken was small. Retailers may not give full thought to drawing their trade boundaries on the map. Second, the validity of the technique can be questioned by the potential users of the survey. The composite map resulting from the survey is merely an armchair estimate. Third, the composite map does not provide the researcher with concrete data on consumer behavior. The

determination by retailers method is limited for practical application.

Traffic Surveys

Traffic surveys have proven to be a valuable tool in delineating retail trade areas for competing cities. John Paver and Miller McClintock in their book, Traffic and Trade state that, "...it is evident that there is a close relationship between the quality (class and type) and the quantity (total volume) of traffic flow and the sales of various retail commodities."[24] Furthermore, in "Measuring the General Retail Trade Area - A Case Study", Edna Douglas states that:

> "...where a single main highway connects two competing cities, and where smaller towns along that route lie within the influence of no more than two large trading centers, it is possible to determine with reasonable accuracy the point of lowest traffic density; and this tends to correlate with the retail trade breaking point between the two cities."[25]

Therefore, it appears as if a strong relationship does exist between traffic volume and trade.

The retail trade area is usually broken down into two categories; the urban (built-up) market region and the primary retail trading area. Paver and McClintock define these two areas as follows:

> The urban market is "...that portion of the market that lies at the center of the trading area, in which there is, from the center of the city or town outward to the limit of the populated area, a relatively high and continuous density of population."[26]

The primary retail trading area "...is that
territory, including and surrounding the urban
market, in which the urban market exercises a
primary attraction, second to the trade attraction
of no other urban market."[27]

Once the definitions have been agreed upon, the procedure for

preparing the base map can begin.

The first step in preparing the retail trade-area base

map is to place counting meters at strategic points on the

highway and road system. Traffic counts should be made at the

following points: (1) where roads cross city limits and/or

built-up areas of the city; (2) at about one mile beyond the

edge of the built-up area of the city; (3) where roads inter-

sect or divide; and (4) at points no further than three miles

apart from one another. The second step is to collect data

at several different points in time. No two days should be

used which are the same, unless a large sampling of different

days in a week are to be collected by the researcher. The

third step is to average the daily trip data at each point

and to plot the point data on the base map. The two market

areas can then be distinguished by the following character-

istics: (1) Traffic volume, after it passes the built-up area

of the city, will diminish rapidly. It then will begin to

gradually stabilize linearly. Traffic is said to become

stabilized when the rate of change declines at a lower rate

than previously. If the data is plotted on a graph with the

horizontal axis equaling distance and the vertical axis

equaling traffic volume, the point at which the drop off

begins to occur most rapidly is the edge or boundary of the urban market area. (2) The primary retail market is defined by means of the major traffic divide or the point of lowest traffic volume between two competing centers. The traffic volume after passing the urban market boundary should continue to decrease gradually until a low point is reached. The traffic volume should then begin to creep upwards again toward the competing market center. The point of the lowest traffic volume between the two centers is then the break-off point. (3) Finally, the researcher should cross check the results with a license-plate survey or some other estimating technique.

The local, county and/or state department of highways should be checked to see if one of these agencies has already completed a transportation study for the city being studied. This study may then be able to serve the needs of the researchers in regard to retail trade-area analysis.

The researcher will usually be able to borrow traffic counters from the state highway department or the local engineering department. If the local, county or state department of highways are unwilling to lend their traffic meters out, they may still agree to supervise such a study. The county or city will then undertake the counting portion of the study and the results can be used for the retail trade-area survey.

The traffic survey technique has a few disadvantages. First, the technique is relatively expensive to use. The cost

will run higher than most of the techniques discussed previously. Second, the technique is somewhat difficult to apply and analyze. In certain situations the low point may fall next to the urban market area or at some other unexplainable point. There also may be several low points along a route. Third, the various highway departments may have already programmed their work forces. Consequently, special studies may not be able to be scheduled when the trade area researchers want them scheduled.

The traffic survey technique has several positive aspects to it. First, the technique will generally give more reliable results than any of the previously discussed methods with the exception of the license-plate technique. Second, the technique takes very little skill to apply properly and the results are usually deemed more valid to the users. Third, the resulting base map produces a good illustration of the city's primary trade area.

Although the traffic survey yields accurate results, the license-plate survey procedure is usually chosen before it since the license-plate survey obtains essentially the same results with a lot less time, money and effort spent. The license-plate survey also provides an accurate and up-to-date list of addresses for the mailed questionnaire survey.

Questionnaires

The most accurate and desirable retail trade-area delineation technique is the questionnaire survey. Questionnaire surveys can be broken down into two specific types of

surveys; the personal interview and the mailed-out question-
naire. Several variations exist within each type of survey.
Each of the two types of surveys will be examined in the
section.

Personal Interview

The personal interview is the most desirable means of
gaining a complete and accurate reply from consumers. The
personal interview can be taken either at the home of the
consumer or at the store being shopped. Researchers have
also made interviews at places of employment and at schools.

The home interview is the best method of gaining
information on the trading area boundaries. The interviewer
can obtain a plethora of information in a relatively short
period of time. The method can also utilize a completely
unbiased random sampling technique. Usually a stratified
random sample is preferable. Three separate samples must be
taken in the household survey; (1) the town of concern;
(2) other nearby villages; and (3) scattered farms and homes
between the competing centers. The sample must be large
enough to reduce the probability limits but yet small enough
to be practical. As a general rule, 10 percent of the farms
should be sampled and one to four percent of the city's
population should be sampled.

The personal-household survey has several severe
limitations. First, the survey takes a large amount of time
and money to complete. The interviewer must travel from

residence to residence to gain an accurate survey and this adds considerable mileage in rural settings. Since the interviewer usually must be paid, it could result in a high cost to the city. Second, the interviewers must be trained before they can enter into the field survey. An untrained interviewer could produce useless questionnaire results. Third, the costs of this type of survey may outweigh its return.

To eliminate some of the above shortcomings of expense and time, personal surveys have been taken from shopping centers. The stores to be surveyed are selected from a stratified random sampling procedure. Each customer or every third customer then is interviewed personally as he or she enters or leaves the store.

Although the store survey has eliminated the time and cost limitations of the household survey, the method creates new problems. First, the interviewer must gain the cooperation of both the store and the shopper. The sample may in fact become biased since certain shoppers may avoid the store because of the interviewer. The store owner then becomes uneasy over the presence of the interviewer. Second, the stores selected to be sampled may not actually be representative of the community.

The final possible place of taking a personal interview is at the employment centers or at schools. Surveys conducted in England have frequently questionnaired students

concerning where their parents make essential purchases. Unfortunately this procedure is severely limited. First, school districts only cover certain bounded areas. Second, children may not have any idea of where their parents shop. Third, the school may not even allow the interviews to take place. A high level of rejection can be expected at employment centers. The sample would be biased anyway because not all retail trade-area shoppers have children.

It can be concluded from the above analysis that although the personal-household survey is the best method of retail sampling, its costs may be too high for small communities. The other two types of personal surveying have even greater limits. Therefore, the mailed questionnaire to households may be the best alternative available.

Mailed Survey

The mailed-questionnaire survey has been selected as the best alternative for application in small community retail trade-area surveys. The technique retains some of the main advantages of the personal-household survey. It also cuts the costs of the surveying procedure to a fraction of the personal-survey method.

The mailed-questionnaire survey must be coupled with one of the previously discussed techniques which yields a representative list of addresses. Sources of lists include: (1) newspaper circulation; (2) telephone books; (3) records of credit customers; or (4) the license-plate survey. The

list must cover regular customers, fringe area customers and possible customers of the future. The survey must be kept within the means of the community in regard to costs and tabulation time. Therefore, it is recommended that the license-plate survey be coupled with the mailed-questionnaire survey in order to provide a representative list of addresses for the mailed survey. It also will serve as a check on the results of the retail trade-area survey. The survey procedure will be discussed in detail in the following chapter.

CHAPTER IV

A SUGGESTED METHOD OF DELINEATION

The mailed questionnaire survey procedure will be discussed in detail in this chapter. The step-by-step process from beginning to end should give the potential investigator ample material in which to construct a retail trade-area survey for his particular community. The chapter will also contain information on how to apply the data once it has been received by the community.

The Retail Trade-Area Survey Procedure

There are eleven distinct steps in undertaking a retail trade-area survey. The eleven sections following will be sequentially ordered so that the investigator can more easily comprehend the survey procedure. Each step will be examined in detail.

The Selection of a Sponsor

The first step in most research projects is to select or obtain an agency to sponsor the project. In a small community, several potential sponsors are available. First, the local chamber of commerce may decide to sponsor the survey. It can then use part of its staff or members to conduct the survey. The chamber of commerce will usually be the best potential sponsor for the retail trade-area survey. Second, a majority

of the businessmen may join together to undertake the survey. This may be unlikely to occur unless there is a particularly concerned businessman in the community that can see the potential advantages of such a survey. Third, the local planning commission or a regional planning agency may wish to conduct a retail trade-area survey for the promotion of its area. These planning agencies could be the most unbiased of all the possible sponsoring agencies. Fourth, the local government may wish to promote the undertaking of a retail trade-area survey. The local government can assign the task of conducting the survey to several members of its staff. Fifth, a consultant could be brought into the community by any of the above sponsors to complete the retail trade-area survey. This alternative is costly and should not be necessary since the retail survey procedure is not difficult to follow.

If the community and its leaders back the undertaking of the survey, most of the work should be able to be done voluntarily. For instance, if the chamber of commerce decides to sponsor the project, it may be able to gather several businessmen to spare a few hours of their time to participate in the survey. The feeling of participation in the survey also helps to promote the follow-up program. With active participation from the community, the costs of the survey will be substantially lower.

Assignment of Roles and Responsibilities

Once the sponsor for the project has been chosen, the

assignment of roles and responsibilities must be made for each person. One enthusiastic and concerned individual must be selected to conduct and direct the survey. This individual should be highly respected in the community by the majority of the merchants. By being highly respected in the community, the director of the survey will be able to gain cooperation from other businessmen and will have access to materials necessary for the project.

Along with the selection of the survey director, a steering committee of five to eight members should be designated to help the director plan the survey, implement the survey, and create a follow-up program. The steering committee should be composed of a variety of highly regarded individuals from various backgrounds. Members could be selected from: (1) school teachers; (2) the chamber of commerce; (3) church leaders; (4) consumer groups; or (5) the general community. No person should be forced or pushed into a position. This typically leads to hard feelings and disorganization. People must be made enthusiastic enough to volunteer.

Formulation of Goals and Objectives

The director and the steering committee will have the immediate responsibility of formulating goals and tentative target objectives for the retail trade-area survey. The local planning commission and the chamber of commerce should be consulted by the survey committee in regard to desirable goals and tentative target objectives. Community goals may include:

(1) creating more recreational facilities for the community;
(2) redesign the downtown area to increase its appeal and trade
area; (3) improve road surface and grade; and (4) increase
parking and improve circulation in the commercial area. The
tentative target objectives will specify in greater detail
the amount of improvement desired based on current knowledge.
The mailed-questionnaire survey must then reflect these goals
and target objectives to see if they are actually valid for
the community.

The goals and target objectives for the community must
emphasize the improvement of the community's shopping area.
The commercial area is the focal point for the retail trade-
area survey. The above stated goals reflect probable avenues
for improvement. With more detailed information on the
individual goals and target objectives, the director and
steering committee will be able to create a more realistic
follow-up program for the community.

Determination of the Study Area Boundaries

The director and the steering committee, after deciding
upon the goals and target objectives of the study, should
choose one of the previously discussed methods of delineation
for the purposes of determining the study area's boundary.
The application of a delineation technique will yield the
geographical area in which the questionnaires will be sent
to customers.

If funds for the survey are extremely limited, the
committee should use the newspaper circulation method to

determine the boundaries of the study area. The method is easily applied and can be done quickly and cheaply. A couple of miles leeway should be added along the demarcation line for possible errors.

If slightly more funds are available for the project, it is advisable to apply the auto license-plate analysis. The auto license-plate analysis provides both a reliable check on the boundaries designated by the mailed questionnaire survey and an accurate list of addresses from which to mail the questionnaire surveys. Therefore, this technique is recommended over the newspaper circulation technique.

The license-plate method should be applied after the goals and target objectives have been determined so that the mailed-questionnaire survey can be undertaken as rapidly as possible.

Construct the Mailed Questionnaire and Introduction Letter

After the auto license-plate survey (or another appropriate technique) has begun, the director and steering committee should begin to consider the design and content of the mailed questionnaire and the introduction letter. Appendix A contains a workable questionnaire form for most small communities. A typical introduction letter is also contained within the appendix. The letter and questionnaire should be adjusted for different desires and characteristics of a community. This can be done by simple adding or deleting certain items, questions, and/or sentences.

The mailed questionnaire is composed of two main parts. The first part contains a list of commodities which are most

frequently or commonly purchased within a city. The survey should ask where the person purchased the item and why he purchased the item in that particular city. The list of items should not exceed twenty-five because it discourages potential respondents from replying. Part two contains questions requiring the respondent to elaborate a little more on his or her likes and dislikes of the shopping area in general. Questions should be related to specific problem areas within the city such as parking, downtown appearance, night openings, congestion, and roadways. The target objectives should have much to do with the framing of the questions.

Questions asked should be brief and concise as possible. For example, instead of asking the person, "Where do you buy your groceries?", the questionnaire should ask, "Where do you buy your meat and bread?" This type of question is more exclusive and will lead to more reliable results. Groceries could possibly include any type of shopping item purchased within a small city.

The introduction letter which accompanies the questionnaire must explain precisely who is conducting the survey and what information they are seeking. This letter should encourage the respondent to fill out the questionnaire form. It should express that the respondent has a vital part in determining the positive need for changes in the community.

It should be mentioned that the type of questions asked in part one will determine to a large extent the radius of the

trade area. The researcher should not be alarmed by a variety of responses. Each item will have a market area all of its own.

Determine the Sample Size

The ideal situation is to survey all the people in the market area. This is unreasonable; but reliable results can be obtained by taking a representative sample of a segment of the total population. The general rule is to use a 5 to 20 percent sample for cities over 10,000 population. A 10 to 30 percent sample should be used for trade areas with less than 10,000 population. These sample size ranges are based on literature research.

If complete address directories of the area are available, respondents can be selected by a stratified random sample technique. If complete directories are not available, as is usually the case, the steering committee should use other sampling methods such as the auto license-plate survey which has been suggested previously. The steering committee may also wish to personally distribute questionnaires to every other home in the community and one-out-of-five mail boxes along a rural road. The postal service can be of significant value with this procedure since they already have postal route addresses available. Thus, the method chosen will depend primarily on the data and means available to the steering committee.

Insure an Adequate and Unbiased Response

The steering committee, after deciding upon the size of

the sample to use and the method to achieve this sample size, must consider how an adequate and unbiased response is to be obtained. The plans laid out by the director and steering committee must insure a response that is representative of the total area. The goal set by the committee should be a return of at least 75 percent of all the mailed questionnaires. This percentage can be obtained by consideration of a few helpful hints.

First, once the questionnaire has been fully designed it should be carefully examined and then pretested on several respondents. The committee must attempt to analyze whether all the data gained will be useful and whether the questionnaire has any major drawbacks. If certain problem areas arise, the questionnaire must be adjusted to eliminate the problems. Feedback response on the introduction letter should be examined on the basis of length, content, simplicity and comprehension. This process of pretesting will at least alleviate some of the drawbacks which could stymie a high response rate.

Second, the sampling procedure to be used in the distribution of the mailed questionnaires must give each potential respondent in the retail trade area an equal chance of being chosen. If questionnaires are distributed at free will without due regard to a consistent procedure, results from the survey could become biased. Because of this reason, the auto license-plate survey method has been suggested. The

address list gained from identifying the location of the car owner will be acceptable to a large majority of people.

Third, no additions or deletions should be made on the final master list of addresses unless a large amount of return mail and/or non-response mailings occur. If the combined amount of returned mail, non-response mailings, and/or useless return mailings exceed 25 percent of the total original sample, a new supplemental sample will need to be executed by using the same sampling procedure technique as used originally. The supplemental sample's purpose then is to achieve the 75 percent return mark of the original mailings.

Publicize the Survey

The retail trade-area survey should be publicized after the questionnaire has been designed and pretested. Since the survey's benefits theoretically accrue to all people, an attempt should be made to have it publicized as news. The publisher of the local newspaper should be willing to print a news story of the project for free. Merchants may wish to include him on the steering committee for the purpose of monitoring the progress of the retail trade-area study.

News of the survey should start in advance of the mailed questionnaire. It should continue to be printed in the paper until adequate returns have been received by the committee. This usually will amount to about two months in time.

The news release should contain the following items: (1) who is conducting the survey; (2) why they are conducting

the survey; (3) what part do the respondents play in the survey; and (4) what can be accomplished by the survey. If the survey is legitimatized through the local paper, a more adequate response is likely to be obtained by the committee.

Conduct the Survey

The first batch of questionnaires should be mailed at the same time the news on the project is released in order to gain maximum impact. Since people seem to forget new releases quite rapidly, the above procedure should be instigated with care and precision.

Each return envelope will have a number placed on it. This number will correspond to an address on the master list kept by the committee. When each envelope is returned, the number can be simply checked off the master list. The envelope with the identification number on it must then be destroyed so that the questionnaire will be held in strict confidentiality. By destroying the envelope no questionnaire return can be personally identified. Questionnaire returns must only be used for retail trade-area study purposes. No individual should ever be identified by himself.

If an adequate response from the questionnaire survey is not received by the researchers, they will usually send a letter called a follow-up letter to the non-respondent's address. The follow-up mailing should include another copy of the question-naire and a new soliciting letter. (See Appendix A)

The first follow-up letters and questionnaires should be sent at the point just after the peak of response. The peak

point will generally occur two to three weeks after the original mailings. If the 75 percent level is still not achieved, a third follow-up mailing may be appropriate. Only the addresses on the master list which have not been checked off should be sent a follow-up questionnaire. No additions or deletions should be made unless absolutely necessary.

Certain cities have used an incentive system for insuring an adequate return. Prizes and gifts have been given away to people who have returned their questionnaires. People sometimes will respond better if there is a possible reward to be gained from filling out the questionnaire.

If the community decides to undertake a stratified random questionnaire sample, it is suggested that different colored questionnaires be used for each stratified district. Proportionate returns for each district can then be easily determined by the committee. This procedure may also identify different buying habits between districts and still maintain confidentiality.

Collect the Data and Tabulate Results

The collection and tabulation of the data can be done by either the director and steering committee or by someone from a local university. The decision is usually based on the quantity of data and the staff available to tabulate the data. The tabulation of the data is by far the most tedious and difficult task.

All data should be collected at a central office. The data, once it has been received, should be tabulated on work

sheets designed for each question. The work sheet data should then be transferred to tables showing such things as: (1) The percent of merchandise items bought in the community or lost to other specific communities; (2) The percent of reasons why they bought where they did. The reasons of people who decided not to shop in the community should be looked at in detail separately; and (3) Tabulate the comment sheet to see if any trends in responses evolved and if so what are they. The committee should be concerned with two main aspects of the questionnaire data: (1) If the people do not shop in the studied city, what are their reasons for it and what are the items which are losing the business; and (2) What are the advantages and disadvantages of the community as seen through the eyes of the consumer. The follow-up program section to be discussed later in the chapter will help the committee formulate this data into an active improvement program.

Data may be coded and processed with a computer. The main problem with this procedure is that the questionnaire must be completely closed. The committee will not be able to get 'straight from the cuff' answers as witnessed on the comment sheet. The bracket listed "other" will also be diffi-cult to analyze using the computer. If a computer is used, results will be somewhat limited in detail and usefulness. Of course, the results of straight "data" can be obtained more swiftly and efficiently by computer, but the author still suggests that the data be hand tabulated.

Summarize and Print the Findings

After the initial tabulations are completed, the retail survey should be written in a report form. The report should contain the statistical summaries, significant findings and the interpretation of the findings. The appendix in the report should contain informal tabulation procedures and some of the remarks made on the comment sheets.

Maps are a vital part of the report and, in fact, best summarize the information collected in research. The centrality index mapping procedure results in a good composite map of all sales. The centrality index map procedure is as follows: (1) Each address listed on the master sheet should be located on a large detailed area map. Cadastral maps are well suited for this purpose. (2) For each address point, list the number of services (from the questionnaire) which the respondent purchased in the surveyed city. For example, if twenty-five purchasable items were listed on the question- naire and the respondent purchased 20 of those items from the surveyed city, the address point on the map would receive a score of 20. It would also be desirable to list the number of items purchased from certain competing cities on the same map or possibly on another map if the base map becomes too crowded. If two cities are named for the same service, each city gets one-half a point. (3) Lines can be drawn to connect points of equal numeric value. Three isometric lines (lines of equal numeric value) should be drawn through the appropriate address

points. First, the points in which 75 percent or more of the
purchases were made in the surveyed city. This is the
intensive market area. Second, the points in which 50 percent
or more of the purchases were made in the surveyed city. This
is the primary or dominant market area. Third, the points in
which at least two purchases were made in the surveyed city.
This is the fringe market area for the city. Therefore, a
complete composite map for all the services can be drawn for
the area.

Individual merchants may desire to have market areas
drawn for each commodity listed on the questionnaire. This is
extremely desirable if time and funds permit. A trade map for
each service or commodity listed on the questionnaire form will
enable local merchants to see how their specific market areas
are shaped. The merchants can then look through the question-
naire results to find out why their market areas are shaped
as they are. Merchants may also find that they are all
deficient in certain marketing areas. If the answers are
honestly given, the questionnaire will give indications of
why this is so.

The Follow-up Program for Community Development

Once the retail trade-area report has been written and
finalized, the director and steering committee should design
a program for community improvement. The program for im-
provement should be based primarily on the results and con-
clusions of the survey. The follow-up program for community

development can be broken down into two parts: (1) Determining and drawing up the action program; and (2) Applying the action program.

Determine the Action Program

The action program must be determined so that defects in a community may be remedied and the merchants may take advantage of the strong points of the community. Unless some concrete action is taken after the survey, the zeal and enthusiasm of the merchants and citizens will dissipate. Decisions for an improvement program can only be made after the data has been correlated with the issues and concerns of the community at large.

Customer evaluations can be categorized into three groups: (1) Comments which relate to individual merchants; (2) Comments which relate to the commercial area as a whole; and (3) Comments which relate to the community as a whole. Customer comments can also be broken down into: (1) those comments which are critical of the community or the merchants; (2) Those comments which praise the community or the merchant; and (3) Those comments which point to a lacking of a facility or service.

Comments must be analyzed carefully. The reactions of people should not always be taken literally. For instance, a statement may be made as follows, "the community needs a good food store" or "the community needs a good drug store." The literal interpretation of the statement would lead a

person to believe a new facility is called for. This is usually not the case. What the person may have meant to say was that the drug store or food store located in the community does not have an adequate selection of goods available. Non-available goods selection cause the consumer to shop in other towns, not the lack of a facility per se. The merchants of the operating stores must then be encouraged to meet the specific needs and demands of their customers.

Another example can be given for clothing stores. The merchants of the city's clothing stores may be unaware of the fact that many different styles exist today. People may be traveling to larger centers for a better selection of items. The merchant may decide to expand his market by offering a broader spectrum of clothes. Therefore, a recommendation could be made to merchants that they should become more familiar with what their customers want rather than what they think their customers would like to have made available.

The survey may also enlighten merchants on the price line that they should carry in their stores. If the stores are handling goods which are financially out of the range of a large segment of their potential customers, it may be necessary to cater more to a lower income customer or vice versa. This step could lead to an increase flow of consumers from a broader income range.

The survey may point to the fact that merchants and their staff are uncourteous and inefficient. If the case is

widespread, it may be necessary for the merchants and staff to take a short course in salesmanship and courtesy. The classes should be held in small groups so that a better learning experience can evolve within the group. Extension classes from a university or business college can often serve this purpose.

It was mentioned previously that a limited selection and price range of goods may be detrimental to a town's commercial area. If the city goes overboard in the other direction they may end up with a little of everything and not much of anything. With a too broad a selection of goods, it is difficult for merchants to keep inventory and stock. Therefore, it is suggested that changes be made gradually in either direction. Successful purchasing of goods must begin with the merchant's understanding and knowledge of what the consumer will want to purchase.

With the coming of the automobile, customers have become more mobile. People are generally willing to travel a few extra miles for an overall lower price. Merchants in a community must be aware of the fact that they are not only competing with stores located within the same community but they are also competing with stores located in other communities. A community will be able to increase its fair share of retail trade by keeping prices at least at nearly the same level as competing communities. Sales and promotional gimics may also be useful in advertising the new prices and changes.

Questionnaire respondents may comment on the lack of services offered by the merchants of the community. Credit policy within the city may be too stringent. Store hours may be only advantageous to the store owner and workers, and not the customers. For example, friday night shopping and early store hours may help rural people shop more easily. After-work hours aid the working man in taking his family shopping. The merchants should try alternative store hours if the survey indicates such changes would be desirable for a major segment of the potential consumers.

The survey may indicate a lack of a facility or inadequacies of certain physical facilities. Customer's comments in regard to the need of community facilities can be the first step toward beginning a community development program. The analyzer of the data must be careful to differentiate between the need for a new store and the need for a new line of goods in a particular store. If a large number of the comments in the questionnaire point to a retail good or facility which is currently not available to consumers, the committee may suggest that a study be made on the required market threshold of the store. The community may discover that they are under-serving their market area.

Furthermore, comments may be made in regard to the physical appearance of the community. Customer perceptions of the outside appearance of the store may dictate what they feel is inside the store. As a result, a merchant may lose

new business because the customer is "reading the book by its cover". It usually is not necessary to completely remodel the store. Usually a good coat of paint, a new sign, and a good cleaning job will aid the appearance of the building. If the whole downtown area is blighted, a small downtown renovation project may be desirable. Communities can usually find financial aid to undertake such projects.

The store customers may also complain about the parking facilities, the road conditions, dangerous railroad crossings and a congested downtown area. Certain small cities have found that constructing parking lots, which ease finding a parking place, attracts more customers. This in turn creates less congestion because people are not circling around the block to find a parking space. Smaller cities, at one time, also believed that routing the main highway through the city's heart was advantageous, but as it turned out, the main highway created congestion - not business. A rerouting of a main highway around the city will aid local business and local customers. Another detriment to downtown business is poor road and railroad crossing conditions. This can deter business to other competing, better equipped communities.

Finally, respondents may indicate that they shop in a particular store because they live close to the store or work in close proximity to a store. People frequently live in one city and work in the next. The worker then may go shopping in the city after he or she is finished working.

The retail survey questionnaire will point this out. If a
majority of the city residents work and shop in a different
city, the merchants will have to initiate an active program
of improvement to attract their own community people.
Community improvements could include more attractive shopping
hours, cheaper prices, and better parking facilities. These
improvements, in turn, could encourage fringe-area shoppers
to drive a little further to obtain better service and fa-
cilities.

Apply the Action Program

Good lip service can be given to the city's problems,
but rarely do we find that communities have the initiative to
undertake a concrete action program. The people of the
community must remember that there is a great deal of inter-
dependence between the commercial area, the industrial base,
and the local government. In rural areas, if grain markets
and elevators refuse to give farmers competitive prices, they
will take their produce and shopping elsewhere. Therefore,
the first step in an action program is to promote the proper
cooperation among all interested and involved parties of the
community.

The director and steering committee must then draw up
concrete goals and specific objectives for the community.
Goals such as 'revitalize the downtown area' are important as
they become specific objectives which identify the exact
change, its place, and time. For example, a good precise

target objective would be to paint and remodel the store front of X's dime store at the first of next month. It must be made certain that these objectives can be met by merchants, especially the deadline dates. The target objectives must be realistic and reasonable to all parties involved in the proposed action. This can be achieved by continued community involvement throughout the study period.

It should be stressed that where the survey indicates that particular merchants are at fault, the best solution to the problem is to bring it to their attention and hope they will agree to the changes which are proposed by the committee. The problems should not be publicized as a muckraking exercise. Care must be taken to assure each individual that his pride and existing market will not be hurt by the results.

The final step in applying the action program is to implement it. Certain changes, such as painting stores, cleaning up the commercial area, improving price ranges and services, can be brought about with little or no money. Other changes, such as community facility improvement (i.e., parks, recreation, city road repair and general promotion) can be achieved with local monies. Aid for certain solutions, such as downtown renewal and highway improvement, must come from external sources. The railroad's main office, the state highway department, federal money sources and other private and public sources should be checked to see if they are applicable to helping implement the community's objectives.

The community may then be able to implement the improvement program without completely relying upon the community's resources.

CHAPTER V

CONCLUSIONS

The procedures for a retail trade-area survey have been discussed in detail. Each step from beginning to end has been examined so that the potential user can apply the majority of techniques without having to refer to other texts. The community leaders should be able to undertake such a survey with only a limited amount of assistance.

The author attempted to give the novice retail research-er an adequate background of the study and a good introduction to trade area studies. The first two chapters form the under-lying basis upon which retail trade-area studies stand. A good understanding of the community's individual market features will make the analysis of the results much simpler.

Several different techniques for delineation of trade areas were discussed with regard to procedure, advantages, disadvantages and evaluation. From the techniques discussed, the auto license-plate survey and the mailed questionnaire survey were recommended as the methods of delineation.

A detailed step-by-step procedure for undertaking a retail trade-area survey was then discussed in the report. It could be used as a do-it-yourself manual for small communities interested in conducting a retail trade-area survey. An example of a mailed questionnaire and an

introduction letter are contained in Appendix A. The procedure
and language is simple enough so that community leaders will
be able to comprehend the entire study. Appendix C contains
several definitions of terms which may not be familiar to all
community leaders.

A variety of alternative uses of the data derived from
the study were provided in the report. If the data is analyzed
properly, a good follow-up program can be instigated for the
community. The procedure to implement the program was briefly
touched upon.

The retail trade-area survey should not be construed
as the final plan for the community. The retail trade-area
survey should be complemented by several reports such as market
feasibility studies, a center-city plan, a transportation cir-
culation plan, and a retail policy and promotion plan. These
types of studies coupled with the retail trade-area survey will
provide the community with progressive community development.

The best way to finalize the study would be to quote a
satisfied customer from Isadore V. Fine's paper on Retail
Trade Area Analysis. The following response should be the
ideal for which the community is striving.

> "I like to trade in ... because they make
> me feel that I belong. There is a friendly,
> more personalized attitude than in other cities
> down the line. The line between the farmer and
> the city is less rigid."[28]

FOOTNOTES

[1]B.J.L. Berry; <u>Geography of Market Centres and Retail Distribution</u>, (Englewood Cliffs, N. J., Prentice Hall, 1967).

[2]Edna Douglas; "Measuring the General Retail Trading Area - A Case Study," <u>Journal of Marketing</u>, V. 13-4, 1949, pp. 481-497 and V. 14-1, 1949, pp. 46-60.

[3]Isadore V. Fine; "Retail Trade Area Analysis," <u>Wisconsin Commerce Papers</u>, V. 1, No. 6, 1954, p. 10.

[4]Ibid., pp. 11-12.

[5]B.J.L. Berry; <u>Geography of Market Centres and Retail Distribution</u>.

[6]Edna Douglas, pp. 481-497 and 46-60.

[7]John E. Brush and Howard L. Gauthier, Jr.; <u>Service Centers and Consumer Trips</u>, (University of Chicago, Department of Geography, Research Paper 113, 1968), p. 119.

[8]J. D. Carroll; "Defining Urban Trade Areas," <u>Traffic Quarterly</u>, V. 9, 1955, p. 151.

[9]Brian Berry and William L. Garrison; "The Functional Bases of the Central Place Hierarchy," <u>Economic Geography</u>, V. 34-2, 1958, p. 149.

[10]P. J. Ambrose; "An Analysis of Intra-Urban Shopping Patterns," <u>Town Planning Review</u>, V. 38, 1968, p. 330.

[11]Donald L. Thompson; "Future Directions in Retail Area Research," <u>Economic Geography</u>, V. 42-1, 1966, p. 3.

[12]Ambrose; p. 334.

[13]Brush and Gauthier; p. 164.

[14]Thompson; p. 17.

[15]T. V. Smith and Leonard D. White; <u>Chicago: An Experiment in Social Science Research</u>, (University of Chicago, 1929), Chapter VIII, p. 433.

[16]Edward A. Duddy and David A. Revzan; <u>Marketing - An Institutional Approach</u>, (McGraw-Hill Book Company, Inc., 1949), p. 421.

Footnotes - Continued

[17]Robert Ezra Park; Human Communities, (The Free Press, Glencoes, Illinois, 1952), p. 218.

[18]Duddy and Revzan; p. 433.

[19]Peter Scott; Geography and Retailing, (Aldine Publishing Company, Chicago, 1970), p. 169.

[20]P. D. Converse; "New Laws of Retail Gravitation," Journal of Marketing, V. 14, 1949, pp. 379-384.

[21]David L. Huff; "Defining and Estimating a Trade Area," Journal of Marketing, V. 28, 1964, p. 36.

[22]Thompson; p. 6.

[23]Fine; p. 17.

[24]John Paver and Miller McClintock; Traffic and Trade, (McGraw-Hill Book Company, Inc., 1935), p. 4.

[25]Edna Douglas; "Measuring the General Retail Trading Area - A Case Study," Journal of Marketing, V. 14-1, 1949, p. 53.

[26]Paver and McClintock; p. 53.

[27]Ibid., p. 53.

[28]Fine; p. 42.

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APPENDIX A

QUESTIONNAIRE AND INTRODUCTION LETTER FORMS

INTRODUCTION LETTER

"Studied City" Chamber of Commerce
Name of City, Name of State

Current Date

Dear Neighbor:

    Your "Studied City" Chamber of Commerce, in cooperation with the downtown area merchants and city fathers, is attempting to make an objective study of the facilities and services offered by the merchants of our community to all the potential customers in the area. We wish to be able to conduct a program of improvement leading to better merchandising in our stores and improved community services to you - our customers.

    In order to know what improvements are most needed, we feel that the people who live in and around our community are the ones who can best tell us what they want and what "Studied City" needs to become a better trade center. Therefore, we are requesting that you take a few precious moments of your time to complete the enclosed questionnaire and return it to us in the enclosed postage-free envelope.

    We want to assure you that the contents of the returned envelope will be handled in strict confidence. You are not to sign it. The number on the outer envelope serves only to aid us in checking off replies on our list. The envelope will be destroyed as soon as it is received and opened for contents.

    We request that you give frank and open answers in filling out this form. We want to know where you buy various types of goods and why you buy them in the community that you do.

    Finally, we would like to assure you that the final answers and results will be used in improving your community. The merchants will be promptly communicated the results once all of the questionnaires are received and tabulated by our study committee. Thank you very much for your time and efforts.

                 Sincerely,

                 Chamber of Commerce, Chairman

CONFIDENTIAL

Where Did You Last Buy and Why?

Please indicate where you last purchased each of the following listed items and the reasons for purchasing those items in that community. Use check marks (✓) where possible. Space has been provided for writing in answers also.

List of Items	WHERE? (Choose one only)				WHY? (Choose as many as necessary)										
	City Conducting Survey *	Major Competing City *	Major Competing City *	Other (Specify)	Lower Price	Better Variety	Better Quality	Liberal Credit	Good Parking	Attractive Store	Courteous Help	Nearness to Store	Proximity to Work	Only Store Available	Other (Specify)
Groceries (food)															
Barber															
Beauty Salon															
Dry Cleaning															
Men's Clothes															
Women's Clothes															
Child's Clothes															
Men's Shoes															
Women's Shoes															
Furniture (tables, lamps)															
Electric Appliances															
Hardware (paint, tools)															
Lumber or Bldg. Materials															
Farm Equipment															
Feed, Seed, or Fertilizers															
5 and 10 Store (variety)															
Florist or Nursery															
Movie															
Doctor															
Dentist															
Drug Store															
Bank															
Jewelry															
Car Dealer															

* To be filled in with the name of a specific city.

"STUDIED CITY" TRADE AREA SURVEY COMMENT SHEET

1. How do you regard general services rendered by "Studied City" business places?

    ( ) Excellent   ( ) Good   ( ) Fair   ( ) Poor

2. In what area do you most often find service unsatisfactory in "Studied City"?

    ( ) Price   ( ) Quality   ( ) Selection
    ( ) Sales People   ( ) Credit

3. In what area do you most often find service satisfactory in "Studied City"?

    ( ) Price   ( ) Quality   ( ) Selection
    ( ) Sales People   ( ) Credit

4. Do you feel that any types of additional stores, recreation or entertainment facilities, or other services are needed in "Studied City"?

    ( ) Yes   ( ) No

    If yes or no, state why you think this way

    _____

    _____

    _____

5. (Space for additional pertinent local questions)

6. (Space for additional pertinent local questions)

7. What specific suggestions, as a consumer, do you have for improving the service in the "Studied City" or what can merchants of stores do to improve service? (Please answer freely since this questionnaire is entirely confidential.)

    _____

    _____

    _____

    _____

    _____

    _____

    _____

    _____

FOLLOW-UP LETTER

"Studied City" Chamber of Commerce
Name of City, Name of State

Current Date

Dear Neighbor:

Unfortunately, our study committee has yet to receive
your reply concerning the retail trade area questionnaire
survey. We understand that sometimes these questionnaires
get misplaced or lost. Therefore, we have enclosed another
questionnaire which should be filled out as soon as possible.

Our study committee would like to remind you that your
reply is important to your community and its merchants.
Unless we receive an adequate sample of questionnaires, our
study may become biased by a few forms and it will not be as
valuable of a study. In turn, our merchants and city fathers
will not know what the people of the community would like to
see changed or done to improve our downtown area. Therefore,
we urge you to fill out the simple questionnaire form and
return it to us as soon as possible. Your time and effort
will be appreciated by your community and friends.

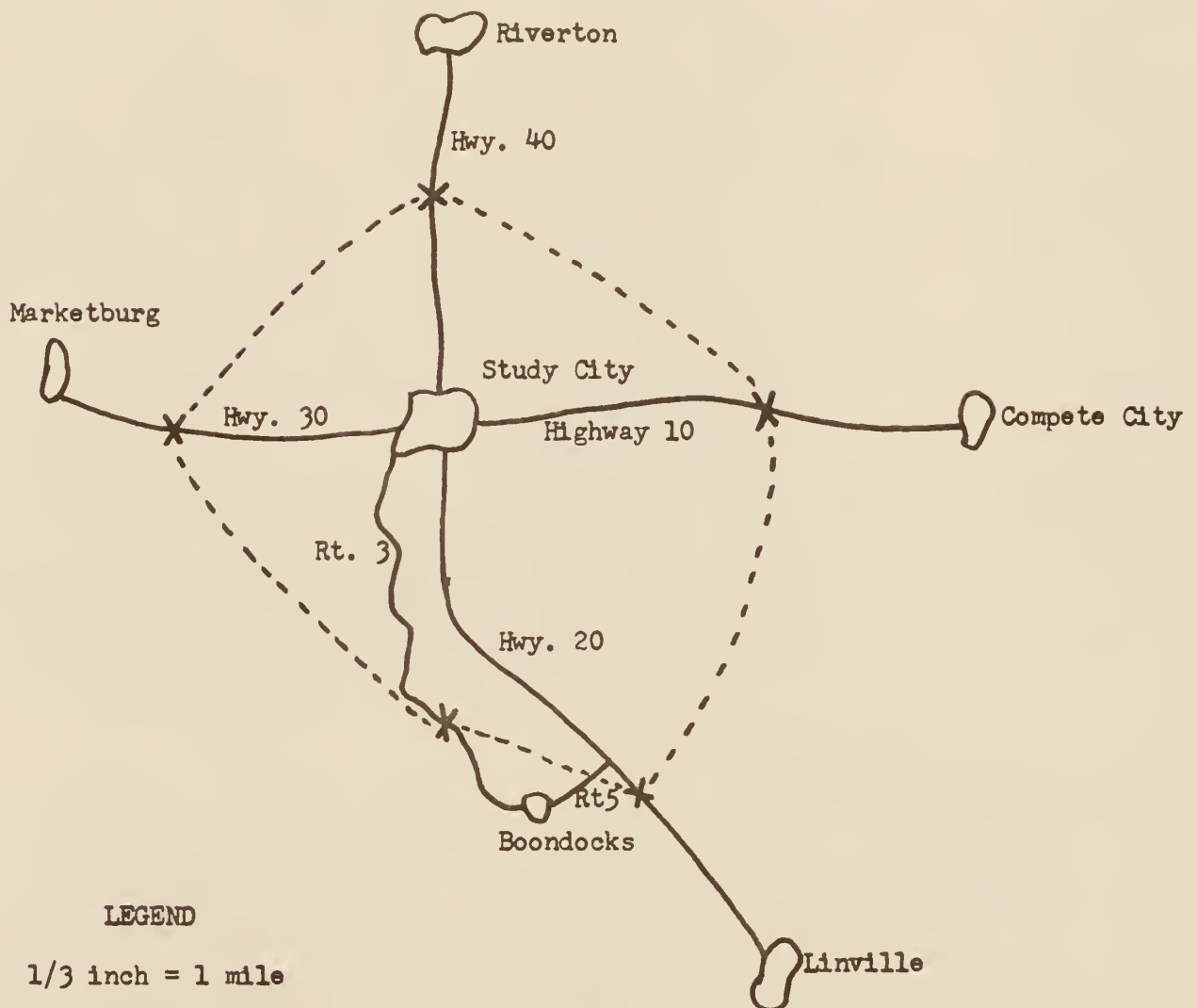Sincerely,

Chamber of Commerce, Chairman

APPENDIX B

COMPUTATION OF THE LAW OF RETAIL GRAVITATION

COMPUTATION OF THE LAW OF RETAIL GRAVITATION – AN EXAMPLE

City and Highway Numbers	Population (A)	Population (B)	$1 + \sqrt{A/B}$	Distance A to B (miles)	Distance to Break Point from B = $\dfrac{\text{Dist. A to B}}{1 + \sqrt{A/B}}$
Study City		10,000			
Riverton by Hwy. 40	6,000		1.77	6	3.39
Compete City by Hwy. 10	5,000		1.71	8	4.68
Linville by Hwy. 20	3,000		1.55	10	6.45
Boondocks by Hwy. 20–Rt. 5 by Rt. 3	1,000		1.33	7 6	5.26 4.51
Marketburg by Hwy. 30	2,000		1.45	6	4.14

LAW OF RETAIL GRAVITATION METHOD

Map of Study City Area
with Breaking Points

Riverton

Hwy. 40

Marketburg

Study City

Hwy. 30   Highway 10   Compete City

Rt. 3

Hwy. 20

Rt5

Boondocks

Linville

LEGEND

1/3 inch = 1 mile

APPENDIX C

DEFINITIONS OF UNFAMILIAR WORDS AND TERMS

1. Cadastral Map - A map which shows the extent, value and ownership of land for taxation purposes. A county assessor's map or school assessment map.

2. Delimit - To set the limits of; to mark the boundaries on a surface.

3. Delineate - To trace the outline of; sketch out.

4. Follow-up Program - A program which follows an analysis or study of an area. A plan or project for implementing needs and desires of a community, based on research. A Community Improvement Program.

5. Hinterland - The area or region surrounding a city which is dependent on the city for goods and services.

6. Plethora - Overabundance; excess.

7. Random Sample - Sample taken from a population which gives each individual in the population an equal chance of being chosen. A non-biased sample.

8. Spurious - Not genuine; something that appears true but in actuality is false.

9. Stratified Random Sample - A sampling technique which divides distinct characteristics of a population into natural groupings. Usually done by different land areas in retail trade area studies.

RETAIL TRADE-AREA DELINEATION TECHNIQUES
FOR CENTRAL PLACE CITIES UNDER 20,000 POPULATION

by

CRAIG EDWARD CINA

B. S., University of Utah, 1972

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AN ABSTRACT OF A MASTER'S NON-THESIS REPORT

submitted in partial fulfillment of the

requirement for the degree

MASTER OF REGIONAL AND COMMUNITY PLANNING

College of Architecture and Design

KANSAS STATE UNIVERSITY

Manhattan, Kansas

1974

ABSTRACT

Community planning and modern business management require
an adequate amount of background information upon which to
base the many decisions which are needed for sound community
development. Complete and accurate information about the
community and about its actual and potential customers, is
vital for local leaders interested in the proper development
of their community.

There has been a long-standing need on the part of
operators of small businesses and chamber's of commerce in
small communities for a simplified and standardized approach
to the study and analysis of trade areas. Most of the studies
done on this subject are badly outdated and are in need of
revision. Therefore, a manual on the application of retail
trade-area delineation techniques is needed for small
communities.

This non-thesis report contains information to assist
any individual merchant or groups of merchants who may be
contemplating a retail trade-area survey. It is intended
that the report be used as a manual by community leaders to
perform trade-area analysis and delineation. The emphasis is
placed on delineation techniques most applicable to small
communities of generally less than 20,000 population.

The basic material essential for a better understanding

of the trade area is presented in the first part of the report. The reasons for undertaking the study, the available sources of data, and the trade-area determinants are discussed in relationship to trade-area studies. This discussion provides the framework upon which retail trade-area studies are based.

The various techniques for delineation of trade areas are examined in the following section. Each technique was analyzed in regard to advantages and disadvantages. Data sources available, and the basic procedure for carrying out each type of survey are also discussed. Eight techniques were contained within the report as follows: (1) Analysis of Credit Records; (2) Analysis of Bank Check Data; (3) Newspaper Circulation; (4) License-Plate Analysis; (5) Law of Retail Gravitation; (6) Determination by Retailers; (7) Traffic Surveys; and (8) Questionnaire Surveys.

Based upon analysis of literature completed in research, the questionnaire survey technique was chosen as the best method of delineation for small communities. This type of survey provides both a reasonable demarcation of the retail trade area and useable data for analyzing consumer buying habits and motivations. A simple step-by-step procedure for undertaking a retail trade-area survey was given in the report. The report provides a complete how-to-do-it manual for retail trade-area studies.

In addition, the report contains information on how to analyze the data gained from a retail trade-area study.

Examples explaining how to set up and apply a program of community improvement are given in the report.

The report concludes with a few final remarks on the study's value and with possible topics for further research. Several appendices are included at the end of text for the purpose of providing the reader with examples, questionnaire forms and definitions.